

AMENDMENTS TO THE CLAIMS

Applicants respectfully request the amending of claim 25, as indicated in the listing of claims below. This listing of claims below will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1 (previously presented). A component of a ballistic armor, said component comprising at least one projectile-processing layer and at least one backing layer placed behind and bonded to said projectile-processing layer;

said backing layer comprising at least one fiber-reinforced plastic material;

said projectile-processing layer comprising at least one ceramic-rich composite body comprising

(a) a matrix comprising at least one metal comprising silicon; and

(b) at least one filler material comprising a plurality of bodies dispersed throughout said matrix; wherein

said ceramic-rich composite body is characterized by a fine-grained microstructure (i) exhibiting no more than a small or slight degree of interconnectivity of the bodies making up the at least one filler material, and (ii) made up of morphological features, wherein no more than about 10 percent by volume of said morphological features are larger than about 300 microns in size, and further wherein said ceramic-rich composite body has a hardness of at least about 1100 kg/mm² as measured with a Vickers indenter using a 1 kg load.

2-5 (canceled).

6 (original). The ballistic armor component of claim 1, generally having a plate shape, and being curved in at least one dimension.

7 (canceled).

8 (previously presented). The ballistic armor component of claim 1, wherein said fiber comprises at least one material selected from the group consisting of polyethylene, aramid and glass.

9 (previously presented). The ballistic armor component of claim 1, wherein said at least one filler material comprises at least one hard phase dispersed throughout said matrix.

10 (previously presented). The ballistic armor component of claim 9, wherein at least about 65 percent by volume of said composite material comprises said at least one filler material.

11 (previously presented). The ballistic armor component of claim 9, wherein at least about 70 percent by volume of said composite material comprises said at least one filler material.

12 (original). The ballistic armor component of claim 1, wherein said armor possesses a ballistic stopping power that is at least 90 percent that of a ballistic armor system consisting essentially of a backing layer bonded to a rear surface of a ceramic layer consisting essentially of hot pressed boron carbide.

13 (original). The ballistic armor component of claim 9, wherein said at least one filler material comprises a plurality of crystallites, and wherein substantially all of said crystallites are smaller than about 350 microns in diameter.

14 (previously presented). The ballistic armor component of claim 9, wherein no more than about 24 percent by volume of said composite material comprises silicon carbide of said matrix.

15 (previously presented). The ballistic armor component of claim 9, wherein said bodies consist at least predominantly of particulate.

16 (previously presented). The ballistic armor component of claim 15, wherein said filler bodies further consist essentially of silicon carbide.

17 (previously presented). The ballistic armor component of claim 1, wherein up to about 24 percent by volume of said composite further comprises beta-SiC.

18 (previously presented). The ballistic armor component of claim 17, wherein said beta-SiC exists as a coating on said bodies.

19 (original). The ballistic armor component of claim 17, wherein said beta-SiC exists as a reticulated structure at least partially interconnecting said filler bodies.

20 (previously presented). A component of a ballistic armor, said component comprising at least one projectile-processing layer and at least one backing layer placed behind and bonded to said projectile-processing layer;

said backing layer comprising at least one fiber-reinforced plastic material;

said projectile-processing layer comprising at least one ceramic-rich composite body made by a process comprising

(a) providing a porous body comprising a plurality of bodies of at least one hard filler, interconnected pores, and substantially no free carbon;

(b) infiltrating said pores with a molten metal comprising silicon; and

(c) solidifying said molten metal to form a substantially pore-free ceramic-rich composite body consisting essentially of morphological features substantially none of which are larger than about 350 microns in size, and wherein said composite body has a hardness of at least about 1100 kg/mm².

21 (previously presented). The ballistic armor component of claim 20, wherein said plurality of bodies of said hard filler material exhibit substantially no contact to one another.

22 (previously presented). The ballistic armor component of claim 20, wherein said plurality of bodies of said hard filler material exhibit a small or slight degree of contact to one another.

23 (original). The ballistic armor component of claim 20, wherein said porous body is self-supporting.

24 (original). The ballistic armor component of claim 20, wherein said porous body has been sintered.

25 (currently amended). The ballistic armor component of claim 20, wherein once said porous body is provided, said ~~mass-porous body~~ thereafter is never exposed to a temperature in excess of about 2100°C.

26 (previously presented). The ballistic armor component of claim 20, wherein said porous body comprises silicon carbide particulate.

27 (previously presented). The ballistic armor component of claim 20, wherein said bodies making up said hard filler have a Vickers hardness of at least about 2400 kg/mm².

28 (previously presented). The ballistic armor component of claim 20, wherein at least about 90% by volume of said morphological features are smaller than about 100 microns.

29 (previously presented). The ballistic armor component of claim 26, wherein said ceramic-rich composite body comprises siliconized silicon carbide.

30 (previously presented). The ballistic armor component of claim 1, wherein said ceramic-rich composite body comprises silicon carbide.

31 (previously presented). The ballistic armor component of claim 1, wherein said matrix further comprises silicon carbide.

32 (previously presented). The ballistic armor component of claim 1, wherein said at least one filler material comprises silicon carbide.

33 (previously presented). The ballistic armor component of claim 30, wherein said ceramic-rich composite body is reaction-bonded silicon carbide.

34 (previously presented). The ballistic armor component of claim 30, wherein said ceramic-rich composite body is siliconized silicon carbide.

35 (previously presented). The ballistic armor component of claim 1, wherein substantially all of said morphological features are smaller than about 350 microns.

36 (previously presented). The ballistic armor component of claim 1, wherein at least about 90% by volume of said morphological features are smaller than about 100 microns.

37 (previously presented). The ballistic armor component of claim 1, wherein no more than about 30 percent by volume of said ceramic-rich composite body comprises said metal.